

CTCGCTCCAAGTTGTCCAGCCGGGACCGCCTCGGGGTGTCCAGCCGGCTCGCGGAGCCCTCTGGGGGGGGCGGGGGCGGCTCGGGG 90
 GGGCCCCCTGAGCAGAAAACAGGAAGAACCAGGCTCGGTCCAGTGGCACCAGCTCCCTACCTCTGTCCAGCCGCTGGCCTGTGGCA 180
 GGCATTCCAGCGTCCCGACTGTGACCACTTGCTCAGTGTCCCTCTCACCTGCCTCAGTTTCCCTCTGGCGCGCGATGGCGGGGGCAG 270
 H A G R

Sma I
 GCTCTCTGGTTTCTGGCGGGCATTTCACGGCTGTGATTCTGCTGAGGAACCTCCCCGGGTGAGCCCCGCTTCTCCGAGCCTGGCACC 360
 G S L V S W R A F H G C D S A E E L P R V S P R F L R A W H

Sma I
 CCCCTCCCGTCTCAGCCAGGATGCCAAGGAGCGCTGGGCCCCGGGACCCAGTGTATCACCAAATGGGAGCACACCCGCCCCAAGCCAG 450
 P P P V S A R M P T R R W A P G T O C I T K C E H T R P K P

Stu I Kpn I
 GGGAGCTGGCCTTCCGCAAGCGGACGCTGGTACCATCCTGGAGGCTGCGAGAACAAGAGCTGGTACCGCGTCAAGCACCACACCACTG 540
 G E L A F R K G D V V T I L E A C E N K S W Y R V K H H T S

Pvu II
 CACAGGAGCGGCTGCTGGCAGCTGGGGCGCTGCGGGAGCGGGAGGCCCTCTCCGAGACCCCAAGCTCAGCCTCATGCCGTGGTTCCACG 630
 G Q E G L L A A G A L R E R E A L S A D P K L S L M P W F H

Pvu II Pst I
 CGAAGATCTCGGGCCAGGAGGCTGTCCAGCAGCTGCAGCCTCCCGAGGATGGGCTGTTCTGGTGGGGAGTCCGGCGGCCACCCCGGG 720
 G K I S G Q E A V Q O L Q P P E D G L F L V R E S A R H P G

Cla I
 ACTACGTCTGTGCGTGAGCTTTGGCCCGGACGTATCCACTACCGCGTGTGACCGCGACGGCCACCTCACAATCGATGAGGCGGTGT 810
 D Y V L C V S F G R D V I H Y R V L H R D G H L T I D E A V

TCTTCTGCAACCTCATGGACATGGTGGAGCATTACAGCAAGGACAAGGGCGCTATCTGCACCAAGCTGGTGAGACCAAAGCGGAAACAG 900
 F F C N L M D M V E H Y S K D K G A I C T K L V R P K R K H

Pst I
 GGACCAAGTCGGCCGAGGAGGAGCTGCCAGGGCGGGCTGGTTACTGAACCTGCAGCATTGTGACATTGGCAGCACAGATCGGAGAGGGAG 990
 G T K S A E E E L A R A G W L L N L O H L T L G A Q I G E G

Pst I Stu I
 AGTTTGGAGCTGTCTGCAGGGTGAGTACCTGGGGCAAAAGGTGGCGGTGAAGAATATCAAGTGTGATGTGACAGCCCAGGCGCTTCTCG 1080
 E F G A V L Q G E Y L G Q K V A V K N I K C D V T A Q A F L

ACCAGACGGCGTCA TGACGAAGATGCAACACGAGAACCTGGTGGCTCTCTGGGGGTGATCCTGCACCAGGGCGCTGTACATTGTCTATGG 1170
 D E T A V M T K M Q H E N L V R L L G V I L H Q G L Y I V H

Sma I Pst I
 AGCAGTGTAGCAAGGCAACCTGGTGAACCTTCTGCGGACCCGGGCTGAGCCCTCGTGAACACCGCTCAGCTCCTGCAGTTTCTCTGC 1260
 E H V S K G N L V N F L R T R G R A L V N T A Q L L O F S L

FIGURE 1A

HinD III

ACCTGCCCCGACGGCATGGAGTACCTGGAGAGCAAGAAGCTTGTGCACCGCGACCTGGCCCCCGCAACATCCTGGTCTCACAGGACCTGG 1350
H V A E G M E Y L E S K K L V H R D L A A R N I L V S E D L

TGCCCCAAGGTCAGCGACTTTGGCCTGGCCAAAGCCGAGCGGAAGGGGCTAGACTCAAGCCGGCTGCCCCGTCAGTGGACGGCGCCCGAGG 1440
V A K V S D F G L A K A E R K G T D S S R L P V K W T A P E

Nde I

CTCTCAAACACGGGAAGTTCACCAGCAAGTCGGATGTCTGGAGTTTGGGGTGCTGCTCTGGGAGGTCTTCTCATATGGACGGGCTCCGT 1630
A L K H G K F T S K S D V W S F G V L L V E V F S Y G R A P

Kpn I

ACCCTAAATGTCACTGAAAGAGGTGTGGAGGGCGTGGAGAAGGGGTACCGCATGGAACCCCCGAGGGCTGTCCAGGCCCCGTGCAGG 1620
Y P K M S L K E V S E A V E K G Y R M E P P E G C P G P V H

Pvu II

Sma I

TGCTCATGAGCAGCTGCTGGGAGGCAGACCCGCGCCCGCCGACCCCTTCGCAAACTGGCCGAGAAGCTGCCCCGGGAGCTACCCAGTG 1710
V L M S S C W E A E P A R R P P F R K L A E K L A R E L R S

CAGGTGCCCCAGCCTCCGTCTCAGGGCAGGACGGCGACGGCTCCACCTCGCCCCGAAGCCAGGAGCCCTCACCCCACTCCGCTGGGGCCCT 1800
A G A P A S V S G D A D G S T S P R S Q E P

TGCCCCAGAGGACCGAGAGAGTGGAGAGTGGGGGCTGGGGGCACTGACCAGGCCCAAGGAGGTCCAGGCGGGCAAGTCATCCTCCTGG 1890

TGCCCCACAGCAGCGGCTGGCCCCAGTAGGGGGCTCTGGCGGGCCCGTGGACACCCAGACCTCGGAAGGATGATGCCCCATAAAGACGG 1980

ATTCTAAGGACTCTAAAAAA 2000

FIGURE 1B

CCGCTTTTTCCTTAGAGCTTGAGAGTCAAAAGGACCCACATGTATACTTCGGCTCTAGCGAGTATGATAATATGGATACA 90
H D T

AAATCTATTCTAGAAGAACTTCTTCTCAAAGATCACAGCAAAAGAAGAAATGTCACCAAATAATTACAAAGAACGGCTTTTGTGTTTG 180
K S I L E E L L L K R S O O K K K H S P N N Y K E R L F V L

ACCAAAACAAACCTTTCCTACTATGAATATGACAAAATGAAAAGGGGCAGCAGAAAAGGATCCATTGAAATTAAGAAAATCAGATGTGTG 270
T K T N L S Y Y E Y D K H K R G S R K G S I E I K K I R C V

GAGAAAGTAAATCTCGAGGAGCAGACGCCTGTAGAGAGACAGTACCCATTTAGATTGTCTATAAAGATGGGCTTCTCTATGTCTATGCA 360 PH
E K V N L E E O T P V E R Q Y P F Q I V Y K D G L L Y V Y A

TCAATGAAGAGAGCCGAAGTCAGTGGTTGAAAGCATTACAAAAAGAGATAAGGGGTAACCCCACTGCTGGTCAAGTACCATAGTGGG 450
S N E E S R S O W L K A L Q K E I R G N P H L L V K Y H S G

TTCTTCGTGGACGGGAAGTTCTGTGTTGCCAGCAGAGCTGTAAAGCAGCCCCAGGATGTACCCTCTGGGAAGCATATGCTAATCTGCAT 540
F F V D G K F L C C O O S C K A A P G C T L W E A Y A N L H

ACTGCAGTCAATGAAGAGAAACACAGAGTTCACCTTCCAGACAGAGTGCTGAAGATACCTCGGGCAGTTCTGTTCTCAAATGGAT 630
T A V N E E K H R V P T F P D R V L K I P R A V P V L K M D

GCACCATCTTCAAGTACCACTCTAGCCCAATATGACAACGAATCAAAGAAAACTATGGCTCCAGCCACCATCTTCAAGTACCAGTCTA 720
A P S S S T T L A Q Y D N E S K K N Y G S O P P S S S T S L SH3

GCGCAATATGACAGCAACTCAAAGAAATCTATGGCTCCAGCCAACTTCAACATGCAGTATATTCCAAGGGAAGACTTCCTGACTGG 810
A Q Y D S N S K K I Y G S O P N F N M O Y I P R E D F P D W

TGGCAAGTAAGAAAACTGAAAAGTAGCAGCAGCAGTGAAGATGTTGCAAGCAGTAACCAAAAAAGAAAGAAATGTGAATCACACCACCTCA 900
W Q V R K L K S S S S S E D V A S S N O K E R N V N H T T S

AAGATTTTCATGGGAATTCCTGAGTCAAGTTTCATCTGAAGAAGAGGAAAACCTGGATGATTATGACTGGTTTGCTGGTAACATCTCCAGA 990
K D I S W E F P E S S S S E E E E N L D D Y D W F A G N I S R

TCACAATCTGAACAGTTACTCAGACAAAAGGGAAAAGAAGGAGCATTATGGTTAGAAATTCGAGCCAAGTGGGAATGTACACAGTGTCC 1080 SH3
S Q S E Q L L R Q K G K E G A F H V R N S S Q V G H Y T V S

TTATTTAGTAAGGCTGTGAATGATAAAAAAGGAAGTGTCAAACATTACCAGTGCATACAAATGCTGAGAACAAATTATACCTGGCAGAA 1170
L F S K A V N D K K G T V K H Y H V H T N A E N K L Y L A E

AACTACTGTTTTGATTCCATTCCAAAGCTTATTTCATTATCATCAACACAATTCAGCAGGCATGATCACACGGCTCCGCCACCCTGTGTCA 1260
N Y C F D S I P K L I H Y H Q H N S A G M I T R L R H P V S

ACAAAGGCCAACAAGGTCCCCGACTCTGTGTCCCTGGGAAATGGAATCTGGGAAGTGAAGAGAGATTACCTTGTGAAGGAGCTG 1350
T K A N K V P D S V S L G N G I W E L K R E E I T L L K E L

GGAAGTGGCCAGTTTGGAGTGGTCCAGCTGGGCAAGTGAAGGGGCAGTATGATGTTGCTGTTAAGATGATCAAGGAGGGCTCCATGTCA 1440
G S G Q F G V V Q L G K W K G Q Y D V A V K H I K E G S H S

GAAGATGAATTCTTTCAGGAGGCCAGACTATGATGAACTCAGCCATCCCAAGCTGGTTAAATTCTATGGAGTGTGTTCAAAGGAATAC 1530
E D E F F Q E A Q T M H K L S H P K L V K F Y G V C S K E Y

CCCATACATAGTGACTGAATATATAAGCAATGGCTGCTTGCTGAATTACCTGAGGAGTCACGAAAAGGACTTGAACCTTCCCAGCTC 1620 Tk
P I Y I V T E Y I S N G C L L N Y L R S H G K G L E P S Q L

TTAGAAATGTGCTACGATGTCTGTGAAGGCATGGCCTTCTTGGAGAGTCACCAATTCATACACCGGGACTTGGCTGCTCGTAACTGCTTG 1710
L E M C Y D V C E G H A F L E S H Q F I H R D L A A R N C L

GTGGACAGAGATCTCTGTGTGAAAGTATCTGACTTTGGAATGACAAGGTATGTTCTTGATGACCAGTATGTCAGTTCAGTCGGAACAAAG 1800
V D R D L C V K V S D F G M T R Y V L D D Q Y V S S V G T K

FIGURE 2A

TTTCAGTCAAGTGGTCAGCTCCAGAGGTGTTTCATTACTTCAAATACAGCAGCAAGTCAGACGTATGGGCATTGGGATCCTGATGTGG 1890
 F P V K W S A P E V F H Y F K Y S S K S D V W A F G I L M W
 GAGGTGTTGAGCCTGGGGAAGCAGCCCTATGACTTGTATGACAACTCCCAGGTGGTTCTGAAGGTCTCCAGGGCCACAGGCTTTACCGG 1980
 E V F S L G K Q P Y D L Y D N S O V V L K V S O G H R L Y R
 CCCCACCTGGCATCGGACACCATCTACCAGATCATGTACAGCTGCTGGCAGCAGCTTCCAGAAAAGCGTCCCACATTTAGCAACTCCTG 2070
 P H L A S D T I Y Q I M Y S C W H E L P E K R P T F Q O L L
 TCTTCATTGAACCACTTCGGGAAAAAGACAAGCATTGAAGAAGAAATTAGGAGTGCTGATAAGAATGAATATAGATGCTGGCCAGCATT 2160
 S S I E P L R E K D K H .
 TTCATTCATTTTAAGGAAAGTAGCAAGGCATAATGTAATTTAGCTAGTTTTTAATAGTGTTCTCTGTATTGTCTATTATTAGAAATGAA 2250
 CAAGGCAGGAAACAAAAGATTCCCTTGAAATTTAGGTCAAATTAGTAATTTTGTATTGCTGCCCTGATATAACACTTTCCAGCCTATA 2340
 GCAGAAGCACATTTTCAGACTGCAATATAGAGACTGTGTTTCATGTGTAAAGACTGAGCAGAAGTAAAAAATTACTTATTGGATATTATT 2430
 CTTTTCTTTATATTGTCATTGTCACAACAATTAATATACTACCAAGTACAAAAAAAAAAAAAAAAAAAAA 2500

FIGURE 2B

CCGGACTGCTCGAAAGACAGGAACAGACTTGAACACAGGGGAGAGCTCCTGGCGAAACGAAGACCTGGAGGTTTTACCAGGGATAAGAAG 90
 AAAAGACACCTTCTAGTGAGCAGCTGCCAGCTCCTGCTCAGTTTTGCCTCGGGGTAGCACCTCCAGCCACAGAAAGCAAGCCGGTAAG 180
 TCTCTCCAGGTAGGACTTGTGCAACCCAGCTGCTGGACTCATCTGAAACGGGACTTTGCATACTCTCCGAAGTATGGTGAGTTGGTGCT 270
 H V S W C
 GACTTCAAAGTTGCCTGGTGAAGGAAGATAAGGTGGATCGCAGAGACTAAGGGGAGAGGGAGAAGCCCTGCTCCTCTTCTCCCCACCAAG 360
 GCACAATCAGCAACATCTGTGAGAGGCTCTGGGAGTACCTAGAACCCTATCTCCCCTGTTTGTCCACGGAGGCAGACAAGTCAACCGTGA 450
 H S N I C O R L W E Y L E P Y L P C L S T E A D K S T V
 TTGAAAATCCAGGGGCGCTTTCTCTCCCCAGTCACAGAGGCATGGCCACTACTTTGTGGCTTTGTTTCATTACCAGGCTCGGACTGCTG 540
 I E N P G A L C S P O S O R H G H Y F V A L F D Y Q A R T A
 AGGACTTGAGCTTCCGAGCAGGTGACAACTTCAAGTTCTGGACACTTTGCATGAGGGCTGGTGGTTTCCAGACACTTGGAGAAAAGAC 630
 E D L S F R A G D K L Q V L D T L H E G W W F A R H L E K R
 CAGATGGCTCCAGTCAGCAACTACAAGGCTATATTCCTTCTAACTACGTGGCTGAGGACAGAAGCCTACAGGCAGACCCGTTGGTTCTTG 720
 R D G S S Q Q L Q G Y I P S N Y V A E D R S L Q A E P W F F
 GACCAATCGGAAGATCAGATGCAGAGAAACAATATTATTCAGAAAACAAGACCGGTTCTTTCTAATCAGAGAAAGTGAAGCCAAA 810
 G A I C R S D A E K O L L Y S E N K T G S F L I R E S E S Q
 AAGGAGAATTCTCTTTTCAAGTTTGTAGTGGAGCAGTTGTAAAACACTACAGAATTAAGAGACTGGATGAAGGGGATTTTTTCTCACGC 900
 K G E F S L S V L D G A V V K H Y R I K R L D E G G F F L T
 GAAGAAGAATCTTTTCAACACTGAACGAATTTGTGAGCCACTACACCAAGACAAGTGACGGCCTGTGTGTCAAGCTGGGGAAACCATGCT 990
 R R R I F S T L N E F V S H Y T K T S D G L C V K L G K P C
 TAAAGATCCAGGTCCCAGCTCCATTTGATTTGTGCTATAAAACCGTGGACCAATGGGAGATAGACCGCAACTCCATACAGCTTCTGAAGC 1080
 L K I O V P A P F D L S Y K T V D Q W E I D R N S I O L L K
 GATTGGGATCTGGTCAAGTTTGGCGAAGTATGGGAAGGTCTGTGGAACAATACCACTCCAGTAGCAGTGAAAACATTAAACCAGGTTCAA 1170
 R L G S G Q F G E V W E G L W N N T T P V A V K T L K P G S
 TGGATCCAAATGACTTCTGAGGGAGGCACAGATAATGAAGAACCTAAGACATCCAAAGCTTATCCAGCTTTATGCTGTTTGCACTTTAG 1260
 H D P N D F L R E A Q I H K N L R H P K L I O L Y A V C T L
 AAGATCCAATTTATATTATTACAGAGTTGATGAGACATGGAAGTCTGCAAGAATATCTCCAAAATGACACTGGATCAAAAATCCATCTGA 1350
 E D P I Y I I T E L M R H G S L Q E Y L O N D T G S K I H L
 CTCAACAGGTAGACATGGCGGCACAGGTTGCCTCTGGAATGGCCTATCTGGAGTCTCGGAAGTACATTACAGAGATCTGGCTGCCAGAA 1440
 T Q O V O M A A Q V A S G H A Y L E S R N Y I H R D L A A R
 ATGTCTCGTTGGTGAACATAATATCTACAAAGTAGCAGATTTTGGACTTGCCAGAGTTTTTAAGGTAGATAATGAACACATCTATGAAT 1530
 N Y L V G E H N I Y K V A D F G L A R V F K V D N E D I Y E
 CTAGACACGAAATAAAGCTGCCGGTGAAGTGGACTGCGCCCGAAGCCATTCTAGTAATAAATTCAGCATTAAAGTCCGATGTATGGTCAT 1620
 S R H E I K L P Y K W T A P E A I R S N K F S I K S D V W S
 TTGGAATCCTTCTTTATGAAATCATTACTTATGGCAAAATGCCTTACAGTGGTATGACAGGTGCCAGGTAATCCAGATGTTGGCTCAA 1710
 F G I L L Y E I I T Y G K M P Y S G H T G A Q V I O M L A Q
 ACTATAGACTTCCGCAACCATCCAAGTGTCCACAGCAATTTTACAACATCATGTTGGAGTGTGGAATGCAGAGCCTAAGGAACGACCTA 1800
 N Y R L P Q P S N C P Q Q F Y N I H L E C W N A E P K E R P

SH3

SH2

TK

FIGURE 3A

CATTTGACACACTGCGTTGGAACTTGAAGACTATTTTGAACAGACTCTTCATATTCAGATGCAAATAACTTCATAAGATGAACACTCG 1890
Y F E T L R W K L E D Y F E T D S S Y S D A N N F I R .
AGAAGAATATCAAATAATAAAGTAGCAAAACAAATTCAAATAATCCATTCCAAAATACAATGTTATCAACCAACTGCACAATCAGTTTAT 1980
CCTGACATATTCAGTGATAGGATAAAAGTTGGCCATGTATTATGAAAAAGATTATTTGTGCATTTTATTGACTGGGCAACACTGCAGGAC 2070
AGTCAAGGTCATATATAATTGCTCACTGCCTGGAAAATTAAGCACACTAAACCAAGTTATTTTTCTTTTAAGAGATACTTACATTTCCA 2160
TTTATTGTTTGAATGTGCGCATCAAGAGAATCAACAGATGATAGTCCAATTTTACTCAGTGATGACTGTGTAGCATTTTCTCTTTAC 2250
TGATTAGAGTGGTTATTCATTATTCCTCAGATTGCTGAATCCCATCAGGCTGTTATTATGAAGGAATTTGATTGCTTTGCTGCACAGCAG 2340
GACCTGTCTTTGAGATTTTTTTTTCTCTTTTAAAAATATCCTGTAACATAATGATGGTAAAGCCATGTTAAATGACTTCATTGTACTTG 2430
GAGTAATTGCACATTTTTTTCTATGCATAAAAAAATGATGCAGCTGTTGAGAAAACGAAGTCTTTTTCATTTTGAGAAGGAAATGATGG 2520
AATTTTCTGTACTTCAGTATGTGTCAACTGAGAGTCATATACATTAGTTTTAATCTCTTAATATTGAGAATCAGGTTGCAAAACGGATG 2610
AGTTATTATCTATGCAAATGTGAGAAATGTCTAATAGCCCATAAAGTCTGAGAAATAGGTATCAAATAGTTTAGGAAAATGAGAGGAGA 2700
ACAGTAGGATTGCTGTGGCCTAGACTTCTGAGTAATTAATAAAGAAAAAGAAGTACCAAAAAAAAAAAAAA 2770

FIGURE 3B

Expression of MKK1 and MKK2

		<u>MKK1</u>	<u>MKK2</u>
Human			
Meg/Eryth	Meg-01	+++	+++
	K562	++	+
	Mo7e	++	+
	HEL	+++	++
Myelo/Mac	KG-1	+	++
	HL-60	+	+
	TF-1	+	+
B-cell	ALL-1	-	+
	Raji	-	-
	Daudi	-	-
T-cell	Molt-3	-	-
	Jurkat	-	-
Epithelial	Hela	-	-
Rodent			
	BM	+	+++
	Spleen	+++	+
	Thymus	-	-
	Liver	-	-
	Brain	+	-
rat neural	P19	+	-

FIGURE 4

**Immunoprecipitation Of In Vitro Transcribed
Translated MKK1 And MKK2 Proteins**

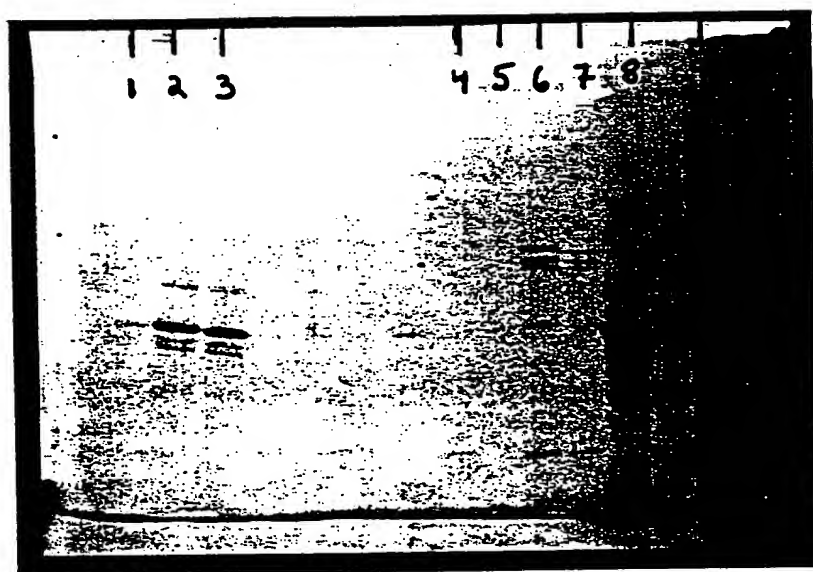


FIGURE 5

Antisense MKK1 Expression Suppresses AChE Production In Primary Murine Bone Marrow Cultures

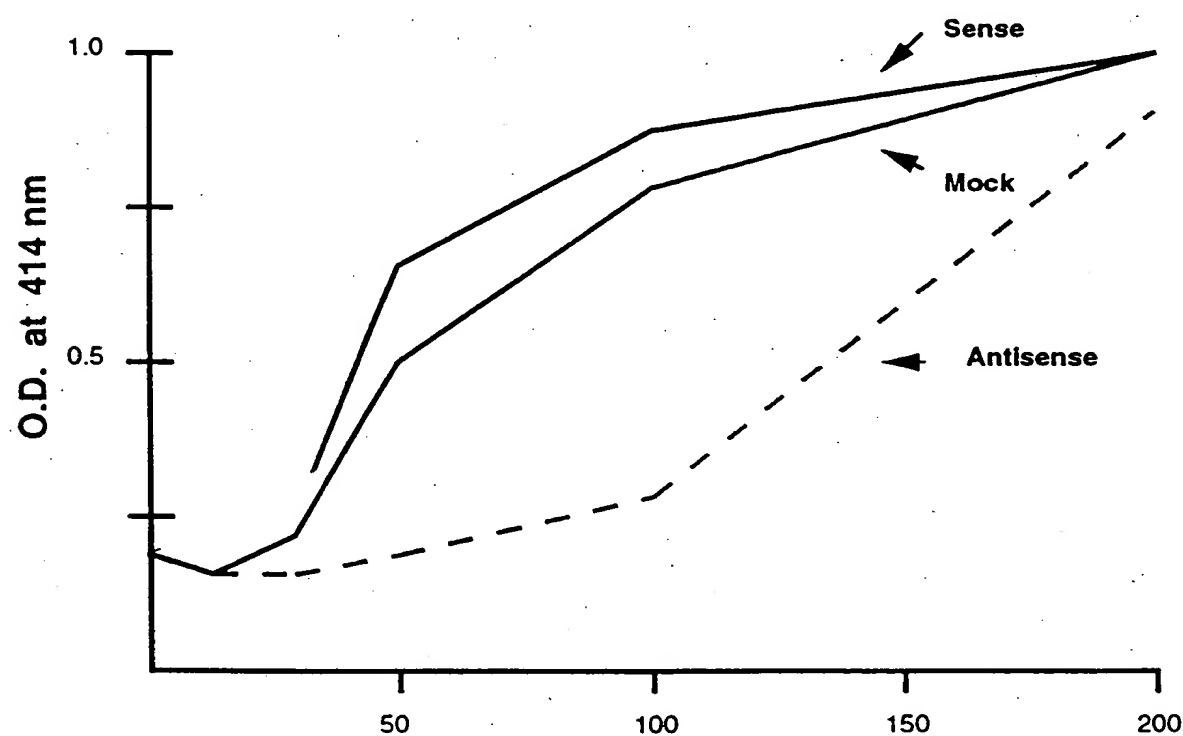


FIGURE 6A

Cell Number x $10^3/200$ ul



FIGURE 6B

MKK2 AND MKK3 AUTOPHOSPHORYLATE
TRANSPHOSPHORYLATE PROTEINS WHEN EXPRESSED IN BACTERIA

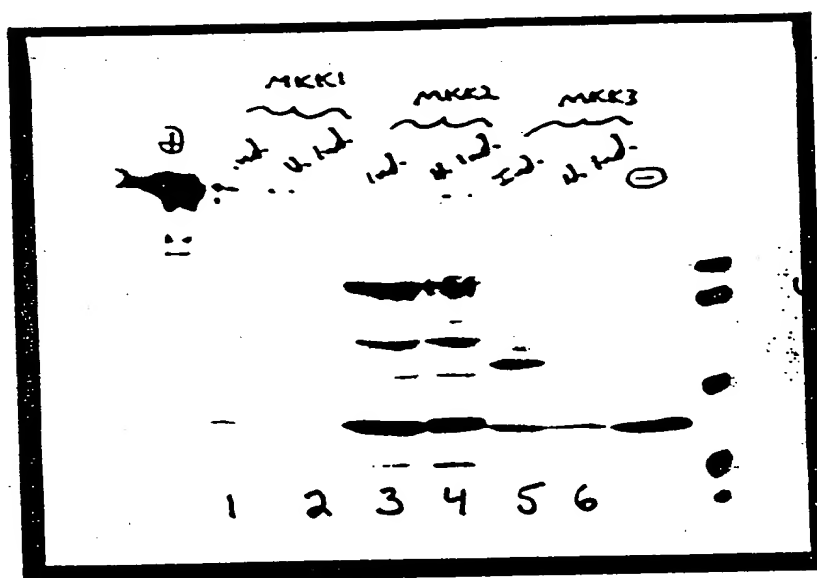


FIGURE 7

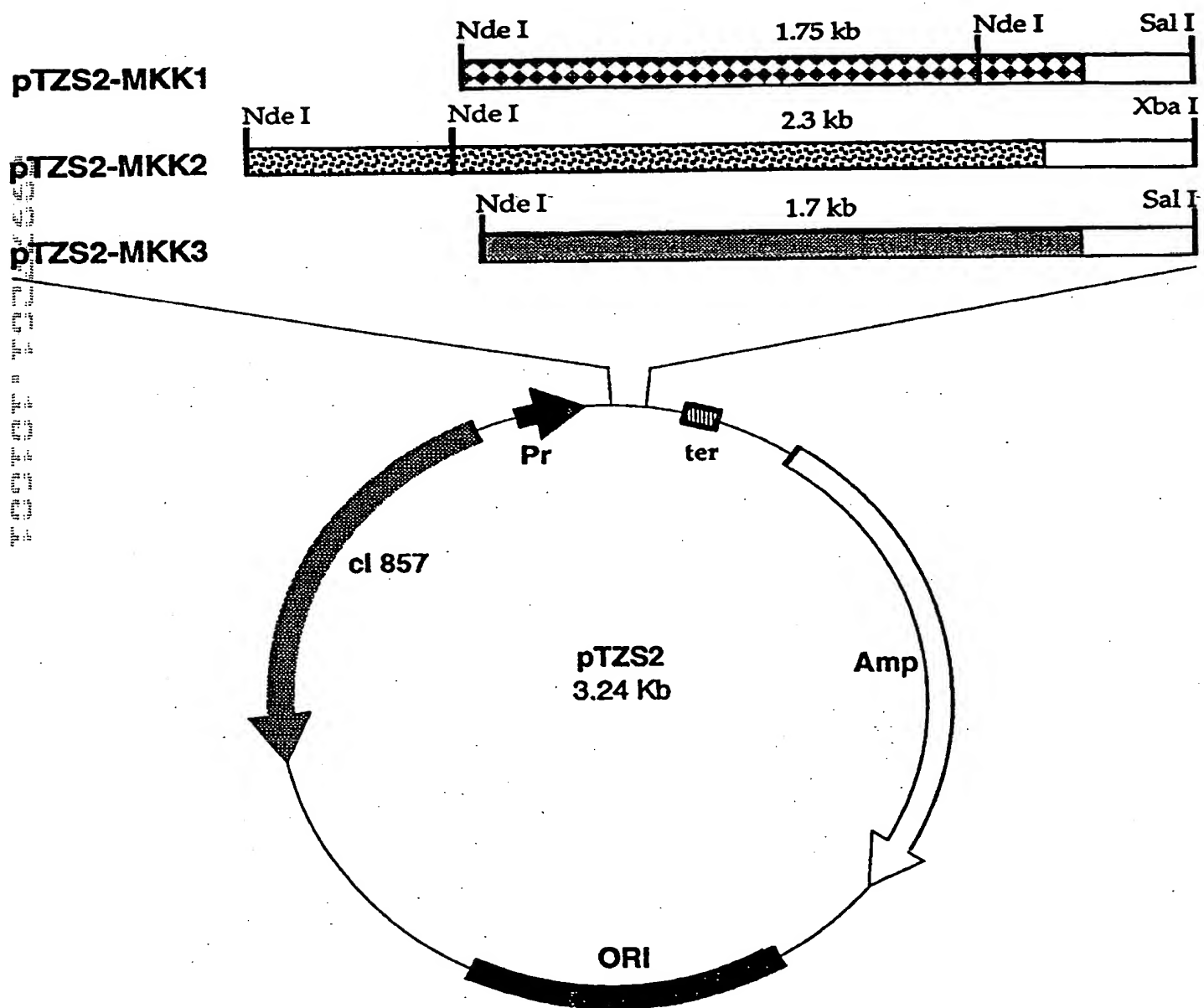


FIGURE 8

1 M A G R G S L V S W R A F H G C D S A E E L P R V S P R F L MKK1 aa
 1 M S A I Q A A - - - - - hCSK (JH0559)

31 R A W H P P P V S A R M P T R R W A P G T O C I T K C E H T MKK1 aa
 8 - - - - - W P S G T E C I A K Y N F H hCSK (JH0559)

61 R P K P G E L A F R K G D V V T I L E A C E N K S W Y R V K MKK1 aa
 22 G T A E Q D L P F C K G D V L T I V A V T K D P N W Y K A K hCSK (JH0559)

91 H H T S G O E G L L A A G A L R E R E A L S A D P K L S L M MKK1 aa
 52 N K V - G R E G I I P A N Y V Q K R E G V K A G T K L S L M hCSK (JH0559)

121 P W F H G K I S G O E A V O O L O P P E D G L F L V R E S A MKK1 aa
 81 P W F H G K I T R E Q A E R L L Y P P E T G L F L V R E S T hCSK (JH0559)

151 R H P G D Y V L C V S F G R D V I H Y R V L H R D G H L T I MKK1 aa
 111 N Y P G D Y T L C V S C D G K V E H Y R I M Y H A S K L S I hCSK (JH0559)

181 D E A V F F C N L M D M V E H Y S K D K G A I C T K L V R P MKK1 aa
 141 D E E V Y F E N L M Q L V E H Y T S D A D G L C T R L I K P hCSK (JH0559)

211 K R K H G T K S A E E E L A R A G W L L N L O H L T L G A O MKK1 aa
 171 K V M E G T V A A Q D E F Y R S G W A L N M K E L K L L Q T hCSK (JH0559)

241 I G E G E F G A V L O G E Y L G O K V A V K N I K C D V T A MKK1 aa
 201 I G K G E F G D V M L G D Y R G N K V A V K C I K N D A T A hCSK (JH0559)

271 Q A F L D E T A V M T K M O H E N L V R L L G V I L H O - - MKK1 aa
 231 Q A F L A E A S V M T Q L R H S N L V Q L L G V I V E E K G hCSK (JH0559)

299 G L Y I V M E H V S K G N L V N F L R T R G R A L V N T A O MKK1 aa
 261 G L Y I V T E Y M A K G S L V D Y L R S R G R S V L G G D C hCSK (JH0559)

329 L L O F S L H V A E G M E Y L E S K K L V H R D L A A R N I MKK1 aa
 291 L L K F S L D V C E A M E Y L E G N N F V H R D L A A R N V hCSK (JH0559)

359 L V S E D L V A K V S D F G L A K A E R K G L D S S R L P V MKK1 aa
 321 L V S E D N V A K V S D F G L T K E A S S T Q D T G K L P V hCSK (JH0559)

389 K W T A P E A L K H G K F T S K S D V W S F G V L L W E V F MKK1 aa
 351 K W T A P E A L R E K K F S T K S D V W S F G I L L W E I Y hCSK (JH0559)

419 S Y G R A P Y P K M S L K E V S E A V E K G Y R M E P P E G MKK1 aa
 381 S F G R V P Y P R I P L K D V V P R V E K G Y K M D A P D G hCSK (JH0559)

449 C P G P V H V L M S S C W E A E P A R R P P F R K L A E K L MKK1 aa
 411 C P P A V Y E V M K N C W H L D A A M R P S F L Q L R E Q L hCSK (JH0559)

479 A R E L R S A G A P A S V S G O D A D G S T S P R S O E P MKK1 aa
 441 E H - - - - - I K T H E L H - - - - - L hCSK (JH0559)

FIGURE 9

1 MDTKSI LEEEL L L KRSQQKKKMSPNNYKERL MKK2 aa
1 MAA-V ILESIFL KRSQQKKKTSP LNFKKRL hAtk (X58957)
1 MN NFILLEEQL IKKKSQOKRRRTSP SNFKVRF hTKT (L10717)
1 MMV - - - - - mTec (X5663)

31 FVLTKT NLSYYE - - YDKMKRGS RKGSI EI K MKK2 aa
30 FLT VHKLSYYE YDFERGR RGS KKGSI DVE hAtk (X58957)
31 FVLTKASL AYFE DR - - HGK KRTL KKGSI ELS hTKT (L10717)
4 - - - - - mTec (X5663)

59 KIRCV EKVNLEEQTPVERQ - - - - - MKK2 aa
60 KITC VETVVP EKNP PPERQ IPRRGEESSEM hAtk (X58957)
59 RIKC VEVIVKSD - - - - - hTKT (L10717)
4 - - - - - mTec (X5663)

78 - - - - - YPFQIVYKDGLLYVYA SNEE MKK2 aa
90 EQISI IERFP YPFQVVYDEGPLYVFSPTTEE hAtk (X58957)
70 - - ISI PCHYK YPFQVVH DNYLLYVFAPDRE hTKT (L10717)
4 - - - - - SF PVKINFHSSP - - - - - Q mTec (X5663)

98 SR SQWLKALQKEIRGNPHLLVKYHSGFFVD MKK2 aa
120 LRKRWIHQ LKNVIRYN S D LVQKYHP CFWD hAtk (X58957)
98 SRQRWVLA LKEETRN NNNSLVPKYHPNFWM D hTKT (L10717)
17 SRDRWVKKLKEETIKNNNNN IMIKYHPKFWAD mTec (X5663)

128 GKFLCCQQSCKAAPGCTLWEAYANLHTAVN MKK2 aa
150 GOYLCCSQTA KNA MGCQILENRNGSLKPGS hAtk (X58957)
128 GKWRCCSQLEKLATGCAQYD - - - - - P hTKT (L10717)
47 GSYQCCRQTEK LAPGCEKY NLFES SI - - - - - mTec (X5663)

158 EEKHRVP TFPDRVLKIPRAVPV LKMDAPSS MKK2 aa
180 SHRKT KKP LPP - - - - - TPEEDQILKKPLPPE hAtk (X58957)
149 TKNAS KKP LPP - - - - - TPE DNR - - - - - hTKT (L10717)
73 - - - - - RKT LPP - - - - - APE - - - - - IKKRRRPP - mTec (X5663)

188 STTLAQYDNE S KKNYGSQPPSSSTSLAQYD MKK2 aa
206 PAAPVSTSELKK - - - - - VVALYD hAtk (X58957)
166 - - RPLWEPEETV - - - - - VIALYD hTKT (L10717)
89 PPIPP EEE ENT EEI - - - - - VVAMYD mTec (X5663)

218 SNSKKIYGSQPNFNMQYIPREDFP - DWWQV MKK2 aa
225 YMPMNA NDLOLRKGDEYFILEESNL PWWRA hAtk (X58957)
182 YQTNDPQELALRRNEEYCLLDSEIHWWRV hTKT (L10717)
108 FOATEAHDLRLERGOEYIILEKN DLHWWRA mTec (X5663)

247 RKLKSSSSSEDEVASSNQKE RNVNHTTSKIS MKK2 aa
255 RD - - KNGQEGYIPSNYVTE - A - - - - - hAtk (X58957)
212 QD - - RNGHEGYVPS SYLV EKS - - - - - hTKT (L10717)
138 RD - - K - - - - - mTec (X5663)

277 WEFPESSSSSEE EENLD D YDWFA GNISR SQS MKK2 aa
273 - - - - - EDSIEM YEWYSKHMT RSQA hAtk (X58957)
231 - - - - - PN NLE T YEWYNK SISRDKA hTKT (L10717)
141 - - - - - YGWYCR N TNRSKA mTec (X5663)

307 EQLLRQK GKEGA FMVRN SSOVG MYTVSLF S MKK2 aa
292 EQLLK OEGKEGGF I VRDSSSKAG KYTVSVFA hAtk (X58957)
250 EKLLLD TGKEGA FMVRD SRTAG TYTVSVFT hTKT (L10717)
154 EQLLRTE DKEGGFMVRDSSOPGL YTVSLYT mTec (X5663)

FIGURE 10A

337 K - A V N D K K G T V K H Y H V H - - T N A E N K L Y L A E MKK2 aa
 322 K S T - G D P Q G V I R H Y V V - - C S T P Q S Q Y Y L A E hAtk (X58957)
 280 K A V V S E N N P C I K H Y H I K E T N D N P K R Y Y V A E hTKT (L10717)
 184 K F G - G E G S S G F R H Y H I K E T A T S P K K Y Y L A E mTec (X5663)

364 N Y C F D S I P K L I H Y H Q H N S A G M I T R L R H P V S MKK2 aa
 349 K H L F S T I P E L I N Y H Q H N S A G L I S R L K Y P V S hAtk (X58957)
 310 K Y V F D S I P L L I N Y H Q H N G G G L V T R L R Y P V C hTKT (L10717)
 213 K H A F G S I P E I I E Y H K H N A A G L V T R L R Y P V S mTec (X5663)

394 T K A N K V P D S V S L G N G I W E L K R E E I T L L K E L MKK2 aa
 379 Q Q N K N A P S T A G L G Y G S W E I D P K D L T F L K E L hAtk (X58957)
 340 F G R Q K A P V T A G L R Y G K W V I D P S E L T F V Q E I hTKT (L10717)
 243 T K G K N A P T T A G F S Y D K W E I N P S E L T F M R E L mTec (X5663)

424 G S G Q F G V V Q L G K W K G Q Y D V A V K M I K E G S M S MKK2 aa
 409 G T G Q F G V V K Y G K W R G Q Y D V A I K M I K E G S M S hAtk (X58957)
 370 G S G Q F G L V H L G Y W L N K D K V A I K T I R E G A M S hTKT (L10717)
 273 G S G L F G V V R L G K W R A Q Y K V A I K A I R E G A M C mTec (X5663)

454 E D E F F Q E A Q T M M K L S H P K L V K F Y G V C S K E Y MKK2 aa
 439 E D E F I E E A K V M M N L S H E K L V Q L Y G V C T K Q R hAtk (X58957)
 400 E E D F I E E A E V M M K L S H P K L V Q L Y G V C L E Q A hTKT (L10717)
 303 E E D F I E E A K V M M K L T H P K L V Q L Y G V C T Q Q K mTec (X5663)

484 P I Y I V T E Y I S N G C L L N Y L R S H G K G L E P S Q L MKK2 aa
 469 P I F I I T E Y M A N G C L L N Y L R E M R H R F Q T Q Q L hAtk (X58957)
 430 P I C L V F E F M E H G C L S D Y L R T Q R G L F A A E T L hTKT (L10717)
 333 P I Y I V T E F M E R G C L L N F L R Q R Q G H F S R D M L mTec (X5663)

514 L E M C Y D V C E G M A F L E S H Q F I H R D L A A R N C L MKK2 aa
 499 L E M C K D V C E A M E Y L E S K Q F L H R D L A A R N C L hAtk (X58957)
 460 L G M C L D V C E G M A Y L E E A C V I H R D L A A R N C L hTKT (L10717)
 363 L S M C Q D V C E G M E Y L E R N S F I H R D L A A R N C L mTec (X5663)

544 V D R D L C V K V S D F G M T R Y V L D D Q Y V S S V G T K MKK2 aa
 529 V N D Q G V V K V S D F G L S R Y V L D D E Y T S S V G S K hAtk (X58957)
 490 V G E N Q V I K V S D F G M T R F V L D D Q Y T S S T G T K hTKT (L10717)
 393 V N E A G V V K V S D F G M A R Y V L D D Q Y T S S S G A K mTec (X5663)

574 F P V K W S A P E V F H Y F K Y S S K S D V W A F G I L M W MKK2 aa
 559 F P V R W S P P E V L M Y S K F S S K S D I W A F G V L M W hAtk (X58957)
 520 F P V K W A S P E V F S F S R Y S S K S D V W S F G V L M W hTKT (L10717)
 423 F P V K W C P P E V F N Y S R F S S K S D V W S F G V L M W mTec (X5663)

604 E V F S L G K Q P Y D L Y D N S Q V V L K V S Q G H R L Y R MKK2 aa
 589 E I Y S L G K M P Y E R F T N S E T A E H I A O G L R L Y R hAtk (X58957)
 550 E V F S E G K I P Y E N R S N S E V V E D I S T G F R L Y K hTKT (L10717)
 453 E I F T E G R M P F E K N T N Y E V V T M V T R G H R L H R mTec (X5663)

634 P H L A S D T I Y Q I M Y S C W H E L P E K R P T F Q Q L L MKK2 aa
 619 P H L A S E K V Y T I M Y S C W H E K A D E R P T F K I L L hAtk (X58957)
 580 P R L A S T H V Y Q I M N H C W K E R P E D R P A F S R L L hTKT (L10717)
 483 P K L A T K Y L Y E V M L R C W Q E R P E G R P S F E D L L mTec (X5663)

664 S S I E P L R E K D K H MKK2 aa
 649 S N I L D V M D E E S hAtk (X58957)
 610 R Q L A E I A E S - - - - G L hTKT (L10717)
 513 R T I D E L V E C E E T F G R mTec (X5663)

FIGURE 10B

1 MSNLCQRLWE - - - - - MKK3 MPI aa
1 MGC VQC KDK EA - T - - - KLT EE R D G S L N Q - S hFyn
1 MGC VHC K E K I S - G - - - K G Q G G S G T G T P A - H cYrk
1 MGS N K S K P K D A - S Q R - R R S L E P A E N V H G - A hSrc
1 MGC I K S K E N K S - P A I - K Y R P E N T P E P V S - T hYes
1 MGC V F C K K L E P - V A T A K E D A G L E G D F R S Y G hFgr
1 MGC I K S K G K D S L S D D G V D L - K T Q P V R N T E R hLyn
1 MGS M K S K - - - F L Q V G G N T F S K T E T S A S P H C hHck
1 MGC G C S S - - - H P E D D W M E N I D V C E N C H Y hLck
1 MGL L S S K R Q V S E K G K G W S P V K I R T Q D K A P P mBlk

11 - - - - - Y L E P MKK3 MPI aa
26 S G Y R Y G T D P T P Q H Y P S F G V T S I P N - - Y N N F hFyn
26 P P S Q Y D P D P T - Q L S G A F - - T H I P D - - F N N F cYrk
28 G G G A F P A S O T P S K P A S A D G H R G P S A A F A P A hSrc
28 S V S H Y G A E P T T V S P C P S S S A K G T A V N F S S L hYes
30 A A D H Y G P D P T K A R P A S - S F A H I P N - - Y S N F hFgr
30 T I Y V R D P T S N K Q Q R P V P E S Q L L P G Q R F Q T K hLyn
28 P V Y V P D P T S T I K P G P N S H N S N T P G I R - - - hHck
26 P I V P L D G K G T L L I R N G S E V R D - P L V T Y E G S hLck
31 P L P P L V V F N H L A P E S P N Q - - - - - mBlk

15 Y L P C L S T E A D K S T V I E N P G A L C S P Q S Q R H G MKK3 MPI aa
54 H A A - - - G G Q G L T V F G G V N - - S S S H T G T L R T hFyn
51 H A A - - - A V S P P V P F S G P G F Y P C N T L Q A H S S cYrk
58 A A E P - - - - - K L F G G F N S S D T V T S P Q R A G hSrc
58 S M T P F G G S S G V T P F G G A S S S F S V V P S S Y P A hYes
57 S S Q A I N P G - - - - - F - - - - - L D S G T I R G hFgr
60 D P E E - - - - - Q G - - - - - hLyn
54 E A G S - - - - - E D - - - - - hHck
55 N P P A - - - - - S P L Q D - - - - - hLck
49 D P D E - - - - - E E - - - - - mBlk

45 H - - - - - Y F V A L F D Y Q A R T A E D L S F R A G D K MKK3 MPI aa
79 R G G T G V T L F V A L Y D Y E A R T E D D L S F H K G E K hFyn
78 I T G G G V T L F I A L Y D Y E A R T E D D L S F Q K G E K cYrk
81 P L A G G V T I F V A L Y D Y E S R T E T D L S F K K G E R hSrc
88 G L T G G V T I F V A L Y D Y E A R T T E D L S F K K G E R hYes
74 V S G I G V T L F I A L Y D Y E A R T E D D L T F T K G E K hFgr
66 - - - - - D I V V A L Y P Y D G I H P D D L S F K K G E K hLyn
60 - - - - - I I V V A L Y D Y E A I H H E D L S F Q K G D Q hHck
64 - - - - - N L V I A L H S Y E P S H D G D L G F E K G E Q hLck
55 - - - - - R F V V A L F D Y A A V N D R D L Q V L K G E K mBlk

69 L Q V L D T L H E G W W F A R H L E K R R D G S S Q Q L Q G MKK3 MPI aa
109 F Q I L N S S E G D W W E A R S L T T G E T G - - - - - hFyn
108 F H I I N N T E G D W W E A R S L S S G A T G - - - - - cYrk
111 L Q I V N N T E G D W W L A H S L S T G Q T G - - - - - hSrc
118 F Q I I N N T E G D W W E A R S I A T G K N G - - - - - hYes
104 F H I L N N T E G D W W E A R S L S S G K T G - - - - - hFgr
90 M K V L E E H - G E W W K A K S L L T K K E G - - - - - hLyn
84 M V V L E E S - G E W W K A R S L A T R K E G - - - - - hHck
88 L R I L E Q S - G E W W K A Q S L T T G Q E G - - - - - hLck
79 L Q V L R S T - G D W W L A R S L V T G R E G - - - - - mBlk

FIGURE 11A

99 Y I P S N Y V A E D R S L Q A E P W F F G A I G R S D A E K MKK3 MPI aa
132 Y I P S N Y V A P V D S I Q A E E W Y F G K L G R K D A E R hFyn
131 Y I P S N Y V A P V D S I Q A E E W Y F G K I G R K D A E R cYrk
134 Y I P S N Y V A P S D S I Q A E E W Y F G K I T R R E S E R hSrc
141 Y I P S N Y V A P A D S I Q A E E W Y F G K M G R K D A E R hYes
127 C I P S N Y V A P V D S I Q A E E W Y F G K I G R K D A E R hFgr
112 F I P S N Y V A K L N T L E T E E W F F K D I T R K D A E R hLyn
106 Y I P S N Y V A R V D S L E T E E W F F K G I S R K D A E R hHck
110 F I P F N F V A K A N S L E P E P W F F K N L S R K D A E R hLck
101 Y V P S N F V A P V E T L E V E K W F F R T I S R K D A E R mBlk

129 Q L L Y S E N K T G S F L I R E S E S Q K G E F S L S V L D MKK3 MPI aa
162 Q L L S F G N P R G T F L I R E S E T T K G A Y S L S I R D hFyn
161 Q L L C H G N C R G T F L I R E S E T T K G A Y S L S I R D cYrk
164 L L L N A E N P R G T F L V R E S E T T K G A Y C L S V S D hSrc
171 L L L N P G N Q R G I F L V R E S E T T K G A Y S L S I R D hYes
157 Q L L S P G N P Q G A F L I R E S E T T K G A Y S L S I R D hFgr
142 Q L L A P G N S A G A F L I R E S E T L K G S F S L S V R D hLyn
136 Q L L A P G N M L G S F M I R D S E T T K G S Y S L S V R D hHck
140 Q L L A P G N T H G S F L I R E S E S T A G S F S L S V R D hLck
131 O L L A P M N K A G S F L I R E S E S N K G A F S L S V K D mBlk

159 - - - - G A V V K H Y R I K R L D E G G F F L T R R R I F MKK3 MPI aa
192 W D D M K G D H V K H Y K I R K L D N G G Y Y I T T R A Q F hFyn
191 W D E A K G D H V K H Y K I R K L D S G G Y Y I T T R A Q F cYrk
194 F D N A K G L N V K H Y K I R K L D S G G F Y I T S R T Q F hSrc
201 W D E I R G D N V K H Y K I R K L D N G G Y Y I T T R A Q F hYes
187 W D Q T R G D H V K H Y K I R K L D M G G Y Y I T T R V Q F hFgr
172 F D P V H G D V I K H Y K I R S L D N G G Y Y I S P R I T F hLyn
166 Y D P R Q G D T V K H Y K I R T L D N G G F Y I S P R S T F hHck
170 F D Q N Q G E V V K H Y K I R N L D N G G F Y I S P R I T F hLck
161 I T T - O G E V V K H Y K I R S L D N G G Y Y I S P R I T F mBlk

184 S T L N E F V S H Y T K T S D G L C V K L G K P C L K I Q V MKK3 MPI aa
222 E T L Q Q L V Q H Y S E R A A G L C C R L V V P C H K G M - hFyn
221 D T I Q Q L V Q H Y I E R A A G L C C R L A V P C P K G T - cYrk
224 N S L Q Q L V A Y Y S K H A D G L C H R L T T V C P T S K - hSrc
231 D T L Q K L V K H Y T E H A D G L C H K L T T V C P T V K - hYes
217 N S V Q E L V O H Y M E V N D G L C N L I A P C T I M K - hFgr
202 P C I S D M I K H Y Q K Q A D G L C R R L E K A C I S P K - hLyn
196 S T L Q E L V D H Y K K G N D G L C Q K L S V P C M S S K - hHck
200 P G L H E L V R H Y T N A S D G L C T R L S R P C Q T Q K - hLck
190 P T L Q A L V O H Y S K K G D G L C Q K L T L P C V N L A - mBlk

214 P A P F D L S Y K T V D Q W E I D R N S I Q L L K R L G S G MKK3 MPI aa
251 P R L T D L S V K T K D V W E I P R E S L Q L I K R L G N G hFyn
250 P K L A D L S V K T K D V W E I P R E S L Q L L Q K L G N G cYrk
253 P Q T Q G L A - - - K D A W E I P R E S L R L E V K L G Q G hSrc
260 P Q T Q G L A - - - K D A W E I P R E S L R L E V K L G Q G hYes
246 P Q T L G L A - - - K D A W E I S R S S I T L E R R L G T G hFgr
231 P Q - - - - K P W D K D A W E I P R E S I K L V K R L G A G hLyn
225 P Q - - - - K P W E K D A W E I P R E S L K L E K K L G A G hHck
229 P Q - - - - K P W W E D E W E V P R E T L K L V E R L G A G hLck
219 P K - - - - N L W A Q D E W E I P R O S L K L V R K L G S G mBlk

FIGURE 11B

244 Q F G E V W E G L W N N T T P V A V K T L K P G S M D P N D MKK3 MPI aa
 281 Q F G E V W M G T W N G N T K V A I K T L K P G T M S P E S hFyn
 280 Q F G E V W M G T W N G T T K V A V K T L K P G T M S P E A cYrk
 280 C F G E V W M G T W N G T T R V A I K T L K P G T M S P E A hSrc
 287 C F G E V W M G T W N G T T K V A I K T L K P G T M M P E A hYes
 273 C F G D V W L G T W N G S T K V A V K T L K P G T M S P K A hFgr
 257 Q F G E V W M G Y Y N N S T K V A V K T L K P G T M S V Q A hLyn
 251 Q F G E V W M A T Y N K H T K V A V K T M K P G S M S V E A hHck
 255 Q F G E V W M G Y Y N G H T K V A V K S L K Q G S M S P D A hLck
 245 Q F G E V W M G Y Y K N N M K V A I K T L K E G T M S P E A mBlk

274 F L R E A Q I M K N L R H P K L I Q L Y A V C T L E D P I Y MKK3 MPI aa
 311 F L E E A Q I M K K L K H D K L V Q L Y A V V S - E E P I Y hFyn
 310 F L E E A Q I M K R L R H D K L V Q L Y A V V S - E E P I Y cYrk
 310 F L Q E A Q V M K K L R H E K L V Q L Y A V V S - E E P I Y hSrc
 317 F L Q E A Q I M K K L R H D K L V P L Y A V V S - E E P I Y hYes
 303 F L E E A Q V M K L L R H D K L V Q L Y A V V S - E E P I Y hFgr
 287 F L E E A N L M K T L Q H D K L V R L Y A V V T R E E P I Y hLyn
 281 F L A E A N V M K T L Q H D K L V K L H A V V T K E - P I Y hHck
 285 F L A E A N L M K Q L Q H Q R L V R L Y A V V T - Q E P I Y hLck
 275 F L G E A N V M K T L Q H E R L V R L Y A V V T R E - P I Y mBlk

304 I I T E L M R H G S L Q E Y L Q N D T G S K I H L T Q Q V D MKK3 MPI aa
 340 I V T E Y M N K G S L L D F L K D G E G R A L K L P N L V D hFyn
 339 I V T E F M S Q G S L L D F L K D G D G R Y L K L P Q L V D cYrk
 339 I V T E Y M S K G S L L D F L K G E T G K Y L R L P Q L V D hSrc
 346 I V T E F M S K G S L L D F L K E G D G K Y L K L P Q L V D hYes
 332 I V T E F M C H G S L L D F L K N P E G Q D L R L P Q L V D hFgr
 317 I I T E Y M A K G S L L D F L K S D E G G K V L L P K L I D hLyn
 310 I I T E F M A K G S L L D F L K S D E G S K Q P L P K L I D hHck
 314 I I T E Y M E N G S L V D F L K T P S G I K L T I N K L L D hLck
 304 I V T E Y M A R G C L L D F L K T D E G S R L S L P R L I D mBlk

334 M A A Q V A S G M A Y L E S R N Y I H R D L A A R N V L V G MKK3 MPI aa
 370 M A A Q V A A G M A Y I E R M N Y I H R D L R S A N I L V G hFyn
 369 M A A Q I A A G M A Y I E R M N Y I H R D L R A A N I L V G cYrk
 369 M A A Q I A S G M A Y V E R M N Y V H R D L R A A N I L V G hSrc
 376 M A A Q I A D G M A Y I E R M N Y I H R D L R A A N I L V G hYes
 362 M A A Q V A E G M A Y M E R M N Y I H R D L R A A N I L V G hFgr
 347 F S A Q I A E G M A Y I E R K N Y I H R D L R A A N V L V S hLyn
 340 F S A Q I A E G M A F I E Q R N Y I H R D L R A A N I L V S hHck
 344 M A A Q I A E G M A F I E E R N Y I H R D L R A A N I L V S hLck
 334 M S A Q V A E G M A Y I E R M N S I H R D L R A A N I L V S mBlk

364 E H N I Y K V A D F G L A R V F K V D N E D I Y E S R H E I MKK3 MPI aa
 400 N G L I C K I A D F G L A R L I - - - E D N E Y T A R Q G A hFyn
 399 D N L V C K I A D F G L A R L I - - - E D N E Y T A R Q G A cYrk
 399 E N L V C K V A D F G L A R L I - - - E D N E Y T A R Q G A hSrc
 406 E N L V C K I A D F G L A R L I - - - E D N E Y T A R Q G A hYes
 392 E R L A C K I A D F G L A R L I - - - K D D E Y N P C Q G S hFgr
 377 E S L M C K I A D F G L A R V I - - - E D N E Y T A R E G A hLyn
 370 A S L V C K I A D F G L A R V I - - - E D N E Y T A R E G A hHck
 374 D T L S C K I A D F G L A R L I - - - E D N E Y T A R E G A hLck
 364 E T L C C K I A D F G L A R I I - - - D S E Y T A Q E G A mBlk

FIGURE 11C

394	K	L	P	V	K	W	T	A	P	E	A	I	R	S	N	K	F	S	I	K	S	D	V	W	S	F	G	I	L	L	MKK3 MPI aa
427	K	F	P	I	K	W	T	A	P	E	A	A	L	Y	G	R	F	T	I	K	S	D	V	W	S	F	G	I	L	L	hFyn
426	K	F	P	I	K	W	T	A	P	E	A	A	L	F	G	K	F	T	I	K	S	D	V	W	S	F	G	I	L	L	cYrk
426	K	F	P	I	K	W	T	A	P	E	A	A	L	Y	G	R	F	T	I	K	S	D	V	W	S	F	G	I	L	L	hSrc
433	K	F	P	I	K	W	T	A	P	E	A	A	L	Y	G	R	F	T	I	K	S	D	V	W	S	F	G	I	L	Q	hYes
419	K	F	P	I	K	W	T	A	P	E	A	A	L	F	G	R	F	T	I	K	S	D	V	W	S	F	G	I	L	L	hFgr
404	K	F	P	I	K	W	T	A	P	E	A	I	N	F	G	C	F	T	I	K	S	D	V	W	S	F	G	I	L	L	hLyn
397	K	F	P	I	K	W	T	A	P	E	A	I	N	F	G	S	F	T	I	K	S	D	V	W	S	F	G	I	L	L	hHck
401	K	F	P	I	K	W	T	A	P	E	A	I	N	Y	G	T	F	T	I	K	S	D	V	W	S	F	G	I	L	L	hLck
390	K	F	P	I	K	W	T	A	P	E	A	I	H	F	G	V	F	T	I	K	A	D	V	W	S	F	G	V	L	L	mBlk
424	Y	E	I	I	T	Y	G	K	M	P	Y	S	G	M	T	G	A	Q	V	I	Q	M	L	A	Q	N	Y	R	L	P	MKK3 MPI aa
457	T	E	L	V	T	K	G	R	V	P	Y	P	G	M	N	N	R	E	V	L	E	Q	V	E	R	G	Y	R	M	P	hFyn
456	T	E	L	V	T	K	G	R	V	P	Y	P	G	M	N	N	R	E	V	L	E	Q	V	E	R	G	Y	R	M	Q	cYrk
456	T	E	L	T	K	G	R	V	P	Y	P	G	M	V	N	R	E	V	L	D	Q	V	E	R	G	Y	R	M	P	hSrc	
463	T	E	L	V	T	K	G	R	V	P	Y	P	G	M	V	N	R	E	V	L	E	Q	V	E	R	G	Y	R	M	P	hYes
449	T	E	L	I	T	K	G	R	I	P	Y	P	G	M	N	K	R	E	V	L	E	Q	V	E	Q	G	Y	H	M	P	hFgr
434	Y	E	I	V	T	Y	G	K	I	P	Y	P	G	R	T	N	A	D	V	M	T	A	L	S	Q	G	Y	R	M	P	hLyn
427	M	E	I	V	T	Y	G	R	I	P	Y	P	G	M	S	N	P	E	V	I	R	A	L	E	R	G	Y	R	M	P	hHck
431	T	E	I	V	T	H	G	R	I	P	Y	P	G	M	T	N	P	E	V	I	Q	N	L	E	R	G	Y	R	M	V	hLck
420	M	V	I	V	T	Y	G	R	V	P	Y	P	G	M	S	N	P	E	V	I	R	S	L	E	H	G	Y	R	M	P	mBlk
454	Q	P	S	N	C	P	Q	Q	F	Y	N	-	I	M	L	E	C	W	N	A	E	P	K	E	R	P	T	F	E	T	MKK3 MPI aa
487	C	P	Q	D	C	P	I	S	L	H	-	E	L	M	I	H	C	W	K	K	D	P	E	E	R	P	T	F	E	Y	hFyn
486	C	P	G	G	C	P	P	S	L	H	-	D	V	M	V	Q	C	W	K	R	E	P	E	E	R	P	T	F	E	Y	cYrk
486	C	P	P	E	C	P	E	S	L	H	-	D	L	M	C	Q	C	W	R	K	E	P	E	E	R	P	T	F	E	Y	hSrc
493	C	P	Q	G	C	P	E	S	L	H	-	E	L	M	N	L	C	W	K	K	D	P	D	E	R	P	T	F	E	Y	hYes
479	C	P	P	G	C	P	A	S	L	Y	-	E	A	M	E	Q	T	W	R	L	D	P	E	E	R	P	T	F	E	Y	hFgr
464	R	V	E	N	C	P	D	E	L	Y	-	D	I	M	K	M	C	W	K	E	K	A	E	E	R	P	T	F	D	Y	hLyn
457	R	P	E	N	C	P	E	E	L	Y	-	N	I	M	M	R	C	W	K	N	R	P	E	E	R	P	T	F	E	Y	hHck
461	R	P	D	N	C	P	E	E	L	Y	-	Q	L	M	R	L	C	W	K	E	R	P	E	D	R	P	T	F	D	Y	hLck
450	C	P	E	T	C	P	P	E	L	Y	N	D	I	I	T	E	C	W	R	G	R	P	E	E	R	P	T	F	E	F	mBlk
483	L	R	W	K	L	E	D	Y	F	E	-	T	D	S	S	Y	S	D	A	N	N	F	I	R						MKK3 MPI aa	
516	L	Q	S	F	L	E	D	Y	F	T	A	T	E	P	Q	Y	Q	P	G	E	N	-	-	-	L					hFyn	
515	L	Q	S	F	L	E	D	Y	F	T	A	T	E	P	Q	Y	Q	P	G	D	N	-	-	-	Q					cYrk	
515	L	Q	A	F	L	E	D	Y	F	T	S	T	E	P	Q	Y	Q	P	G	E	N	-	-	-	L					hSrc	
522	I	Q	S	F	L	E	D	Y	F	T	A	T	E	P	Q	Y	Q	P	G	E	N	-	-	-	L					hYes	
508	L	Q	S	F	L	E	D	Y	F	T	S	A	E	P	Q	Y	Q	P	G	D	Q	-	-	-	T					hFgr	
493	L	Q	S	V	L	D	D	F	Y	T	A	T	E	G	Q	Y	Q	Q	-	-	Q	-	-	-	P					hLyn	
486	I	Q	S	V	L	D	D	F	Y	T	A	T	E	S	Q	Y	Q	Q	-	-	Q	-	-	-	P					hHck	
490	L	R	S	V	L	E	D	F	F	T	A	T	E	G	Q	Y	Q	P	-	-	Q	-	-	-	P					hLck	
480	L	Q	S	V	L	E	D	F	Y	T	A	T	E	G	Q	Y	E	L	-	-	Q	-	-	-	P					mBlk	

FIGURE 11D

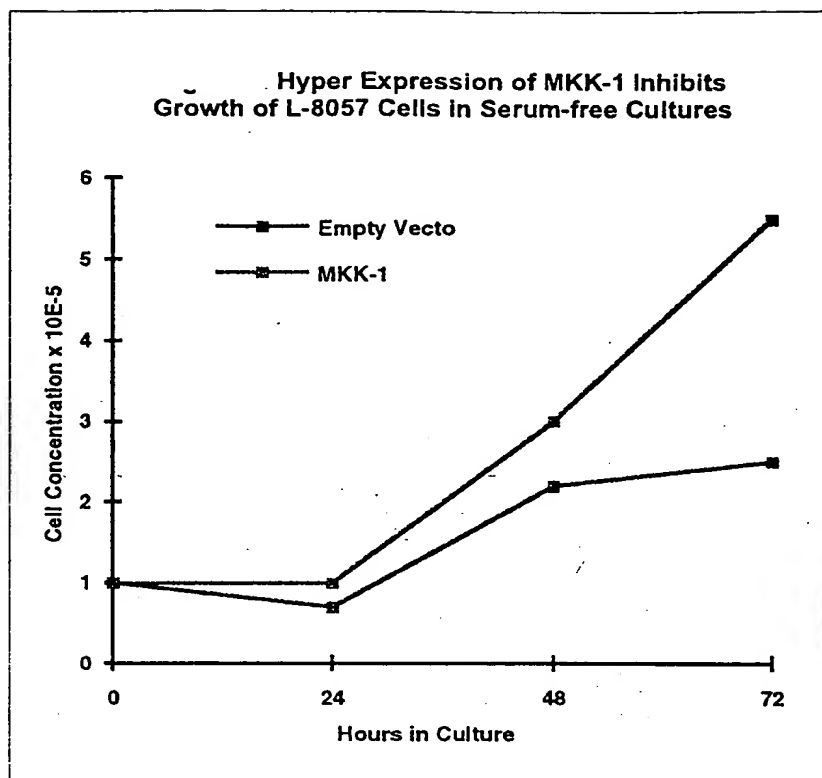


FIGURE 12

Growth Factor Response of MKK-1 Expressing L-8057 Cells

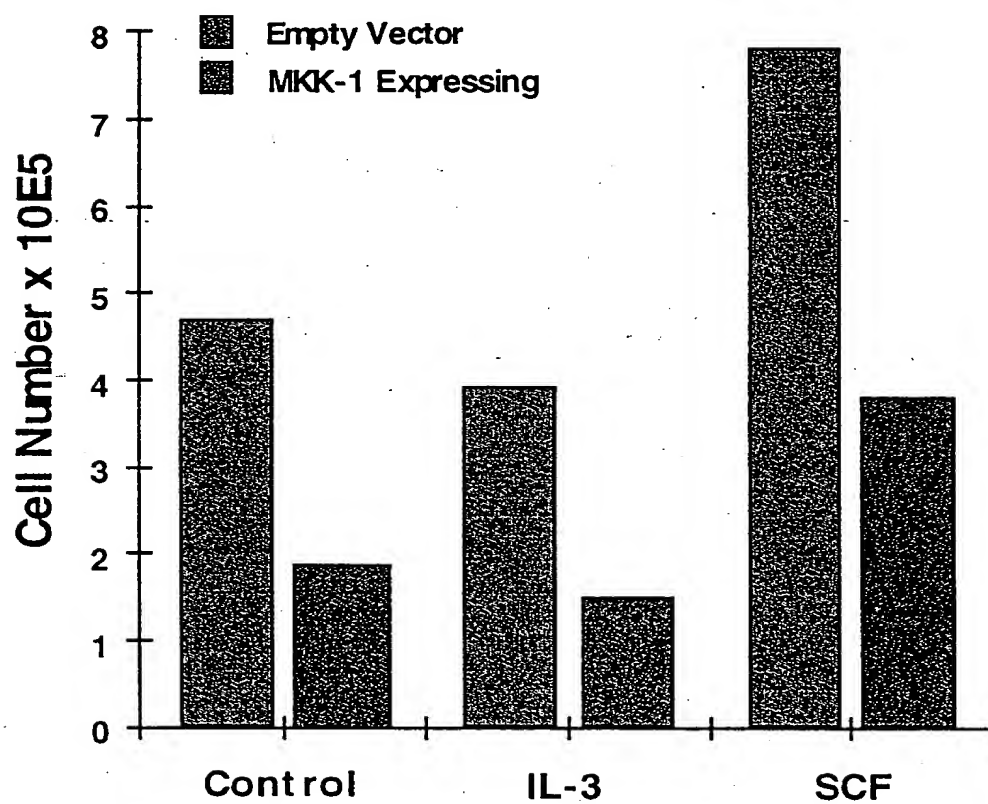
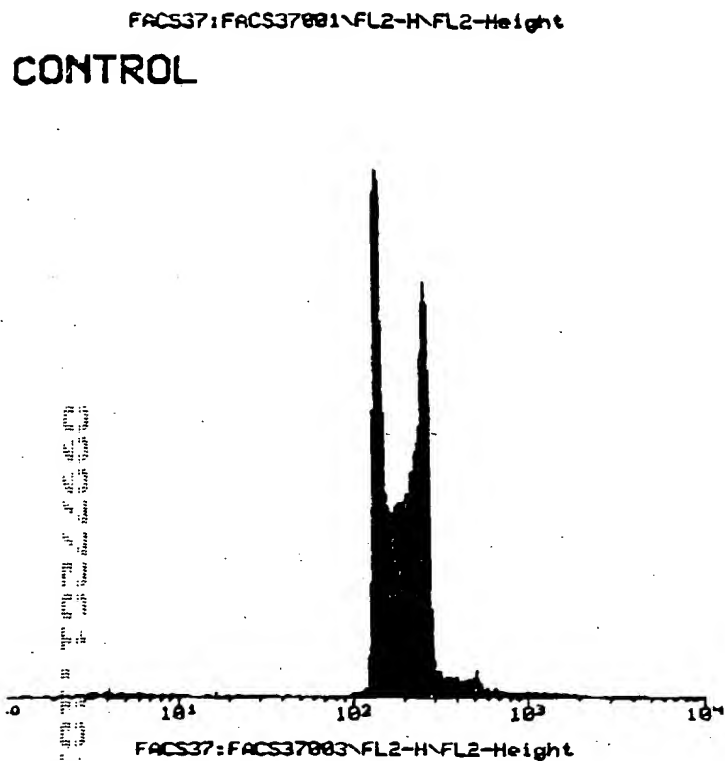


FIGURE 13



MKK-1

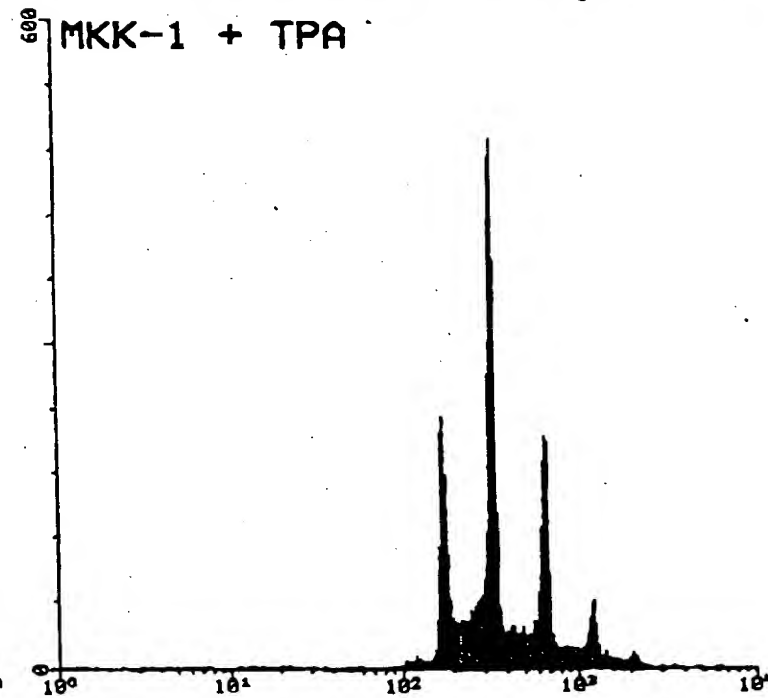
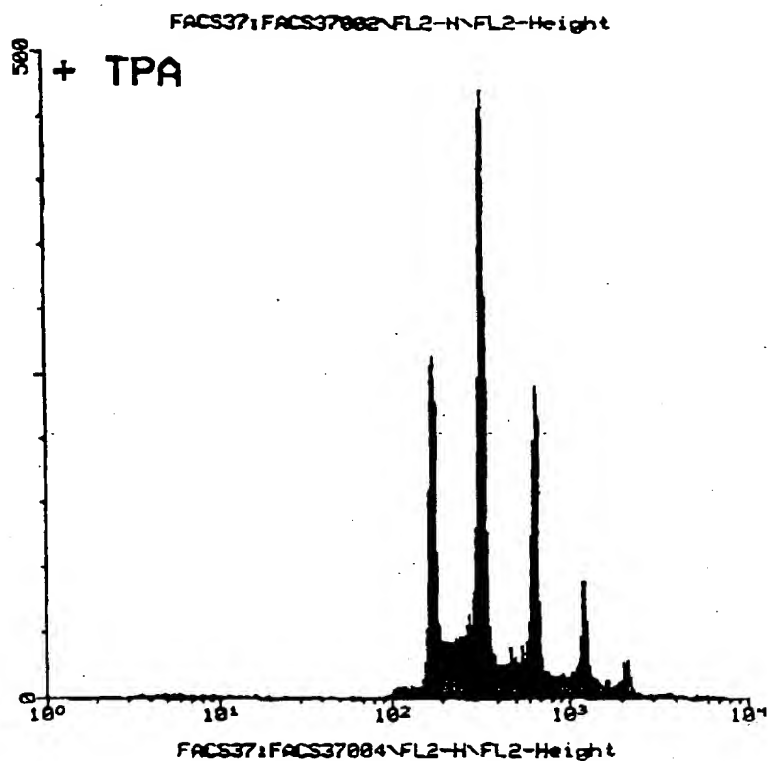
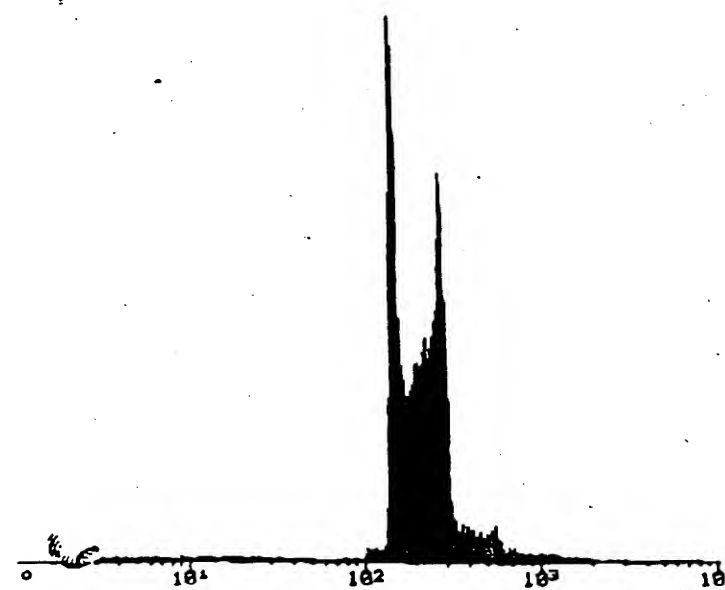


FIGURE 14